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BAINWOOD HUANG & ASSOCIATES LLC
2 CONNECTOR ROAD
WESTBOROUGH, MA 01581

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UNITED STATES PATENT AND TRADEMARK OFFICE
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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES
_____

Ex parte SHUJIN ZHANG, JAYADEV KUMARASAMY,
and XIAO GONG
_____

Appeal 2009-001807
Application 09/835,164[1]
Technology Center 2100
_____

Decided: January 21, 2010
_____

Before HOWARD B. BLANKENSHIP, JAY P. LUCAS, and ST. JOHN
COURTENAY III, *Administrative Patent Judges*.

LUCAS, *Administrative Patent Judge*.

DECISION ON APPEAL

_____

[1] Application filed April 13, 2001. The real party in interest is Cisco
Technology, Inc.

STATEMENT OF THE CASE

Appellants appeal from a twice rejection of claims 67 to 94 under authority of 35 U.S.C. § 134(a). The Board of Patent Appeals and Interferences (BPAI) has jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Appellants' invention relates to an apparatus for issuing or renewing a host addresses on a computer network using a Dynamic Host Configuration Protocol (Spec 9, ll. 7-9). In the words of Appellants:

> The apparatus will allow a network administrator to control and monitor the assignment of host addresses. The apparatus, which may be termed DHCP proxy, may forward, drop, or return any packets it receives. . . . [T]he DHCP proxy identifies the host 10(a-N) by looking at the host identifier, which is usually located in the ciaddr field. The host identifier may be the MAC address, a password, source address, user name, or any other like identifiers.

(Spec. 9, ll. 9-16).

Claims 67 and 81 are exemplary:

> 67.   An apparatus for handling a request for a network address allocation, the apparatus comprising:
>
>   a host identifier retrieving module configured to retrieve a host identifier from the request;

a host identifier matching module coupled to said host identifier retrieving module and configured to match said host identifier with a lost of host identifiers;

a host state maintenance module coupled to said host identifier matching module and configured to maintain a state of authentication for a host associated with said host identifier if a match is found;

a relay agent address field proxy address insertion module configured to insert a proxy address in a relay agent address field in the request;

a request transmission module coupled to said relay agent field proxy address insertion module and configured to transmit said request to an address allocation device to issue or renew a host address if said host associated with said host identifier is in a state of authentication;

an address allocation device response receiving module configured to receive a response from said address allocation device;

a server identifier field proxy address insertion module coupled to said address allocation device response receiving module and configured to modify a value in a server identifier field in said response to match said proxy address; and

a response transmission module coupled to said server identifier field proxy address insertion module and configured to transmit said response to said host associated with said host identifier.

81.   An apparatus for handling a request for a network address allocation, the apparatus comprising:

means for retrieving a host identifier from the request;

means for matching said host identifier with a list of host identifiers;

means for maintaining a state of authentication for a host associated with said host identifier if a match is found;

means for inserting a proxy address in a relay agent address field in the request;

means for transmitting said request to an address allocation device to issue or renew a host address if said host associated with said host identifier is in a state of authentication;

means for receiving a response from said address allocation device;

means for modifying a value in a server identifier field in said response to match said proxy address; and

means for transmitting said response to said host associated with said host identifier.

REJECTION

The Examiner rejects the claims as follows:

R1:   Claims 67 to 94 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

The rejection will be reviewed in the order of the arguments by Appellants. The claims are grouped as per Appellants' Brief. Only those arguments actually made by Appellants have been considered in this opinion. Arguments that Appellants could have made but chose not to make in the Brief have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii).

<div align="center">ISSUE</div>

The issue is whether Appellants have shown that the Examiner erred in rejecting the claims under 35 U.S.C. § 101. The issue specifically turns on whether claims 67 to 94 qualify as statutory subject matter.

<div align="center">FINDINGS OF FACT</div>

The record supports the following findings of fact (FF) by a preponderance of the evidence.

<div align="center">*Disclosure*</div>

1. Appellants have invented an apparatus for issuing or renewing host addresses on a computer network (Spec. 9, ll. 7-8). "The apparatus will allow a network administrator to control and monitor the assignment of host addresses." (*Id.* at ll. 8-9). The original method, apparatus, and "means for" claims were cancelled and replaced with the four independent apparatus claims on appeal (Brief 5, top; Spec. 18, top to 24, middle). Each claimed "apparatus" includes various "modules," including "a host identifier retrieving module" and "a host identifier matching module." (*See* claims 67, 74, and 88.) The Specification contains no discussion of the "modules" at the places where Appellants'

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directed us in the "Summary of the Claimed Invention" section of the
opening Brief (Brief 7, bottom). The cited drawings show a DHCP proxy
agent but do not even show a "host identifier retrieving module" and a
"host identifier matching module," as recited in claim 67, and nothing in
the Specification discloses how these modules are "coupled" (Fig. 4,
DHCP Proxy 40 and Fig. 5A, element 40).

PRINCIPLES OF LAW

Appellants have the burden on appeal to the Board to demonstrate
error in the Examiner's position. *See In re Kahn*, 441 F.3d 977, 985-86
(Fed. Cir. 2006).

The Court of Appeals for the Federal Circuit (CAFC) recently
clarified the law regarding patent eligible subject matter for process claims.
In re Bilski, 545 F.3d 943 (Fed. Cir. 2008) (en banc). The en banc court in
Bilski held that "the machine-or-transformation test, properly applied, is the
governing test for determining patent eligibility of a process under § 101."
(*Id.* at 956).

"[W]e conclude that claim [ ] fails to recite any tangible practical
application in which the mathematical algorithm is applied that results in a
real-world use." *Ex parte Gutta,* No. 2008-4366, 2009 WL 2563524, at *9
(BPAI 2009) (precedential).

> [T]hese terms do not denote devices that take their
> names from the functions being performed or have

> a generally understood relevant meaning in the art.
> Rather, they could mean every conceivable means
> of performing the function.
>
> Therefore, we conclude there is no structural
> context for determining the characteristics of these
> claim elements other than to describe the function
> of each element. We further conclude that these
> claim elements are verbal constructs that are not
> recognized as the name of a structure and are
> simply a substitute for the term "means for."

Ex parte Rodriguez, No. 2008-000693, 2009 WL 3756279, at *12 (BPAI

2009) (precedential).

"We must determine 'whether the term is one that is understood to

describe structure, as opposed to a term that is simply a nonce word or a

verbal construct that is not recognized as the name of structure and is simply

a substitute for the term 'means for.'" (*Id.* at *11) (quoting *Lighting World,*

Inc. v. Birchwood Lighting, Inc., 382 F.3d 1354, 1360 (Fed. Cir. 2004)) As

the Federal Circuit stated in *Lighting World:*

> In *Greenberg* [*v. Ethicon Endo-Surgery,*
> *Inc.,* 91 F.3d 1580 (Cir. Fed. 1996),] and
> subsequent cases, we have looked to the dictionary
> to determine if a disputed term has achieved
> recognition as a noun denoting structure, even if
> the noun is derived from the function performed.
> *See Greenberg,* 91 F.3d at 1583 ("Dictionary
> definitions make clear that the noun 'detent'
> denotes a type of device with a generally
> understood meaning in the mechanical arts, even
> though the definitions are expressed in functional
> terms."); *Linear Tech. Corp.,* 379 F.3d [1311 (Fed.
> Cir. 2004)] (technical dictionary makes clear that
> "circuit" is structural); *CCS Fitness* [*v. Brunswick*
> *Corp.,* 288 F.3d 1359,1369 (Fed. Cir. 2002)]
> (dictionary definitions consulted to determine that

>   an artisan of ordinary skill would understand the
>   term in question to have an ordinary meaning);
>   *Personalized Media Communications* [*v. Int'l*
>   *Trade Com'n,* 161 F.3d 696, 704 (Fed. Cir. 1998)]
>   (same).

(382 F.3d at 1360-1361).

"[T]he purported 'structures' in the claims are essentially black boxes
not connoting any structure to the skilled artisan, and are merely circularly
defined by their desired functions. For the reasons expressed above, these
'structures' are not enabled and are properly rejected under § 112, first
paragraph." (*Rodriguez,* 2009 WL 3756279 at *21).

ANALYSIS

From our review of the administrative record, we find that the
Examiner has presented a prima facie case for the rejection of Appellants'
claims under 35 U.S.C. § 101. The prima facie case is presented on pages 3
to 4 of the Examiner's Answer. In opposition, Appellants present two
arguments.

Arguments with respect to the rejection
of claims 67 to 80
under 35 U.S.C. § 101 [R1]

First, Appellants argue that claim 67 is not drawn to a data structure
within the definition of the *Interim Guidelines for Examination of Patent*
Applications (OG Notices: November 2005), Annex IV, Computer-Related
Nonstatutory Subject Matter (Brief 12, middle).

In their own words, Appellants argue: "Since the subject matter of Claims 67-80 is not drawn to a data structure and is not descriptive per se material, it is statutory and the rejection under 35 U.S.C. § 101 based on the assertion to the contrary should be withdrawn." (Brief 13, middle).

In reply, the Examiner maintains that the claimed invention is directed to non-statutory subject matter (Ans. 3, top).

"[W]e conclude that claim [ ] fails to recite any tangible practical application in which the mathematical algorithm is applied that results in a real-world use." *Ex parte Gutta,* No. 2008-4366, 2009 WL 2563524, at *9 (BPAI 2009) (precedential).

We disagree with the Examiner's finding that the claimed subject matter is not statutory. We identify the "apparatus" of claim 67 as being embodied by the Dynamic Host Configuration Protocol (DHCP) proxy 40 as shown in Figs. 4 and 5A. We note that similar to the machine in *Ex parte Gutta*, the claimed "apparatus" (*i.e.*, the DHCP proxy 40) as shown in the embodiment in Fig. 5A, includes a memory and a processor ("CPU"). Moreover, the "apparatus" of claim 67 includes several elements (Appellants' "modules") that are purportedly structural (*see infra*). Since a computer network administrator can use the apparatus "to control and monitor the assignment of host addresses" (FF#1), we find that Appellants' "apparatus" does indeed perform a "real-world task."

To be clear, the Specification sufficiently discloses a tangible application of the matching of host identifiers for efficient network administration (*i.e.*, a "real-world task"). Thus, we find that claim 67 meets the requirement (*i.e.*, "real-world task") set for statutory subject matter regarding apparatuses or devices. We note that Appellants' claim 67 is

drawn to an apparatus, and not a process. The *Interim Guidelines* of 2005 relied upon by the Examiner antedate *Bilski*, and thus do not reflect current law in this rapidly developing area. Accordingly, we find error regarding the Examiner's analysis of claim 67.

A finding of error applies to the dependencies of claim 67, as well as to independent claims 74 and 88 and their respective dependencies, because each of the claims recites an "apparatus" that includes substantially similar subject matter.

Second, Appellants argue that claims 81 to 94 are not drawn to *per se* descriptive material within the definition set forth in the *Interim Guidelines*, cited above (Brief 12, bottom).

Regarding claims 81 to 94, we reiterate the above-stated rationale regarding "real-world use," in light of the teachings of *Ex parte Gutta.*

OTHER ISSUES

The first issue is whether claims 67 to 94 are definite under 35 U.S.C. § 112, 2nd paragraph. The second issue is whether claims 67 to 94 enable a person of ordinary skill in the art to make and use the claimed invention under 35 U.S.C. § 112, 1st paragraph.

REJECTION OF CLAIMS 67 TO 94 UNDER 37 C.F.R. § 41.50(B)

We make the following new grounds of rejection using our authority under 37 C.F.R. § 41.50(b).

Rejections:

[R2]: Claims 67 to 80 and 88 to 94 are rejected under 35 U.S.C. § 112, 2nd paragraph, as being indefinite.

[R3]: Claims 67 to 80 and 88 to 94 are rejected under 35 U.S.C. § 112, 1st paragraph, as not being enabled.

[R4]: Claims 81 to 87 are rejected under 35 U.S.C. § 112, 2nd paragraph, as being indefinite.

[R5]: Claims 81 to 87 are rejected under 35 U.S.C. § 112, 1st paragraph, as not being enabled for the scope of the claims.

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Rejection of claims 67 to 80 and
88 to 94
under 35 U.S.C. § 112, 2nd paragraph [R2]

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On its face, claim 67 contains no overt "means plus function" elements, just modules. The numerous modules of claim 67 include, for example, "a host identifier retrieving module" and "a host identifier matching module." Each element contains functional language followed by the term "module." The absence of "means for" claim language triggers a rebuttable presumption that 35 U.S.C. § 112, 6th paragraph, does not apply. However, this Board's precedential opinion *Ex parte Rodriguez,* 2009 WL 3756279 (BPAI 2009)*,* dictates that our analysis of the "modules" of claim 67 does not end here.

First, we must determine "whether the term is one that is understood to describe structure, as opposed to a term that is simply a nonce word or a verbal construct that is not recognized as the name of structure and is simply a substitute for the term 'means for.'" *Id.* at *11 (quoting *Lighting World*).

Regarding the "modules" of claim 67, we consulted general and subject-matter specific dictionaries, as well as networking textbook glossaries.[2] We find no evidence that any of the "modules" of claim 67 had achieved recognition as a noun-denoting structure at the time of filing, or even later. In view of our reliance on these dictionaries/glossaries and our review of the record, we thus conclude that none of the modules is "an art-recognized structure to perform the claimed function." (*Id.* at *12.) In addition, claim 67 fails to recite any other structure that would perform these claimed functions.

We find that the Specification insufficiently describes for a person of ordinary skill in the art the meaning of the claim term "module." As in *Rodriguez* (*see id.*), we cannot say that the skilled artisan would have recognized the "modules" of claim 67 as being a particular structure or a variety of structures at the time of filing. Therefore, we conclude, as we did in *Rodriguez* (*see id.*), that despite the fact that the "modules" of claim 67 appear to be structures on the face of the claim language, the modules are merely "verbal constructs" (*see id.*) that are simply a substitute for the term "means for."

Having determined claim 67 effectively contains "means for" elements in accordance with the *Rodriguez* rationale, cited above, we analyze the claims as being equivalent to means for "retrieving a host identifier" and means for "matching a host identifier."

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[2] *Microsoft Computer Dictionary*, Microsoft Press, 5th edition, 2002; *Dictionary of Communications Technology*, John Wiley & Sons Ltd., 1998; *The American Heritage Dictionary of the English Language*, 4th edition, 2006; *Data Communications and Networking*, McGraw Hill, 3rd edition, 2004; and *Network Warrior*, O'Reilly Media Inc., 1st edition, 2007.

In the "Summary of Claimed Subject Matter" section of Appellants' Brief, Appellants point to page 9 at lines 13 to 15 and page 13 at lines 13 to 16 of the Specification in support of the elements of claim 67. (Brief 7, bottom; 8, middle). However, the cited portion includes no algorithm by which the claimed "modules" perform the functions recited in claim 67.

The "modules" that "retrieve," "match," and "maintain" are merely the results of an unspecified process. We find that the Specification contains no discussion of "modules" at the places where Appellants directed us in the "Summary of the Claimed Invention" section of the opening Brief (FF#1). Further, the drawings (Figs. 5A) show a DHCP proxy 40 that contains a processor and a memory. However, nothing discloses the "host identifier retrieving module" and the "host identifier matching module," as recited in claim 67, and nothing discloses how these modules are "coupled," as claimed (*id.*).

We note that the Specification does not disclose any specific algorithms that could be implemented on a general purpose computer to provide "means for retrieving a host identifier" and "means for matching a host identifier." To the contrary regarding "retrieving a host identifier," the Specification broadly discloses that a list of host identifiers may be manually configured by a network administrator, retrieved from an external database, or obtained by client registration to the DHCP proxy. Thus, the Specification fails to specify the structure of the claimed "host identifier retrieving module." Accordingly, the Specification fails to disclose the algorithms that transform the general purpose processor (*i.e.*, CPU 56 of DHCP 40) to a special purpose computer programmed to perform the disclosed functions of the elements of claim 67.

We conclude, as we did in *Rodriguez*, that "Appellants have failed to sufficiently disclose any algorithm, and thus have failed to adequately describe sufficient structure, for performing the functions recited in the means elements contained in claim [67] so as to render the claim definite." (2009 WL 3756279 at *16). Accordingly, not having satisfied the requirements of the safe harbor of 35 U.S.C. 112, 6th paragraph, claim 67 is rejected under 35 U.S.C. 112, 2nd paragraph, as indefinite.

Claims 68 to 73, depend from claim 67. These claims incorporate the same problem by that dependency and stand rejected under 35 U.S.C. 112, 2nd paragraph, as indefinite.

Independent claims 74 and 88 recite substantially similar subject matter. The claims and their respective dependencies are rejected for the same reasons as claim 67.

Rejection of claims 67 to 80 and
88 to 94
under 35 U.S.C. § 112, 1st paragraph [R3]

Purely functional claiming (*i.e.*, an element defined solely by the function being performed) that is unsupported by an algorithm in the Specification is insufficient under 35 U.S.C. § 112, 1st paragraph, as well as 35 U.S.C. 112, 2nd paragraph described above. Such claim elements are purely functional and not enabled for the scope of the claims under 35 U.S.C. § 112, 1st paragraph. (*See id.*)

We reject claims 67 to 80 and 88 to 94 for lack of enablement under 35 U.S.C. § 112, 1st paragraph, because the claim elements are purely

functional (*i.e.*, there is no particular structure to support the function being performed).

Functional language alone does not render a claim improper. *See In re Swinehart*, 439 F.2d 210, 212 (CCPA 1971). However, as in *Ex parte Rodriguez* (2009 WL 3756279 at *18), Appellants' claim 67 recites no meaningful structure. Rather, the scope of the functional claim language of claim 67 is "so broad and sweeping that it includes all structures or means that can perform the function." (*Id.*). That is, the claim language is not limited to any particular corresponding structure, material, or act disclosed in the Specification and equivalents thereof (*id.*).

We focus on the functional claim language of the claimed "host identifier matching module" (claim 67). We note that the Specification does not disclose any specific algorithm that could be implemented on a general purpose computer to match the host identifier. More specifically, at page 14 of the Specification, the fact that the "DHCP proxy matches the host identifier with a list of host identifiers" is a result of an unknown process. (*See* Spec. 14, l. 18.) Moreover, we note that Fig. 6, step 64 merely discloses "match[ing] host identifier with a list of host identifiers" without specifying how the matching occurs. Thus, we regard the matching "module" as merely a black box performing the recited matching function in an unknown manner.

The apparatus claims before us were not part of the original disclosure since the original method, apparatus, and "means for" claims were cancelled and replaced with the four independent apparatus claims on appeal (FF#1). Since the claims on appeal were not part of the original Specification, these claims require Appellants to point to their support in the Specification.

However, Appellants' "Summary of the Claimed Invention" section of the Brief fails to specify that these "modules" represent a particular structure defined other than as any structure that performs the recited function (*i.e.*, it is essentially a black box that performs the recited function). (*See* FF#1; Brief 7, bottom to Brief 8, top.) Appellants acknowledge that the various modules are "for performing functions set forth" in claim 67 (Brief 7, bottom). In addition, Appellants refer to the support for each so-called "module" as "the module, whose functionality is described in" certain pages and lines of the Specification (*id.*).

We find that Appellants' "host identifier matching module" is not a definite structure. Therefore, if the "host identifier matching module" element is not a means to which 35 U.S.C. § 112, 6th paragraph, is applicable, then it is simply an element defined solely by the function being performed (*i.e.*, a purely functional element unlimited by any particular structure).

We find that the "host identifier matching module" is unbounded as the claim language encompasses every means of accomplishing the matching function of the claimed "apparatus." The "modules" in the claims are essentially black boxes not connoting any structure to the skilled artisan and are merely circularly defined by their desired functions. The Specification contains no discussion of any of the "modules" of claim 67 at the places where Appellants directed us in the "Summary of the Claimed Invention" section of the opening Brief (FF#1). The cited drawings show a DHCP proxy agent but do not even show a "host identifier retrieving module" and a "host identifier matching module," as recited in claim 67, and nothing in the Specification discloses how these modules are "coupled," as

claimed (*id.*). For the reasons expressed above, these "modules" are not enabled and are properly rejected under 35 U.S.C. § 112, 1st paragraph.

Claims 68 to 73, depend from claim 67. These claims incorporate the same problem by that dependency and fail to resolve the problem through the recitation of a specific device for performing the functions of the claimed "apparatus."

Independent claims 74 and 88 recite substantially similar subject matter. The claims and their respective dependencies are rejected for the same reasons as claim 67.

Rejection of claims 81 to 88
under 35 U.S.C. § 112, 2nd paragraph [R4]

Independent claim 81 recites "means for" language. The presence of "means for" claim language triggers a presumption that 35 U.S.C. § 112, 6th paragraph applies. Accordingly, we look to the Specification for a corresponding structure. (*See Aristocrat Tech. Australia Pty. Ltd. v. Int'l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008).) However, as we stated *supra*, we find no corresponding structure for the "means for" claim elements. Accordingly, claim 81 is rejected as being indefinite.

Claims 82 to 87 are indefinite because of their dependency from claim 81.

Rejection of claims 81 to 88
under 35 U.S.C. § 112, 1st paragraph [R5]

For the same reasons as stated above under the rejection [R3] of claim 67, we find that the "means for" elements of claim 81 are not limited

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to a specific device for performing the functions of the claimed "apparatus" and, therefore, the claim is not enabled.

Claims 82 to 88 are not enabled because of their dependency from claim 81.

CONCLUSIONS OF LAW

Based on the findings of facts and analysis above, we conclude that the Examiner erred in rejecting claims 67 to 94 under 35 U.S.C. § 101.

All of the claims stand rejected under new grounds of rejection [R2 to R5] as being indefinite and not enabled under 35 USC 112, 2nd paragraph, and 35 USC 112, 1st paragraph, respectively.

DECISION

The Examiner's rejection of claims 67 to 94 is reversed. We applied four new grounds of rejection [R2 to R5] to claims 67 to 94.

This decision contains a new ground of rejection pursuant to 37 C.F.R. § 41.50(b). 37 C.F.R. § 41.50(b) provides that "[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review."

37 C.F.R. § 41.50(b) also provides that Appellants, <u>WITHIN TWO MONTHS FROM THE DATE OF THE DECISION</u>, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

> (1) *Reopen prosecution.* Submit an appropriate amendment of the claims so rejected or new evidence relating to the claims so rejected, or both, and have the matter reconsidered by the

>examiner, in which event the proceeding will be remanded to
>the examiner. . . .
>
>(2) *Request rehearing*. Request that the proceeding be reheard
>under § 41.52 by the Board upon the same record. . . .

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37 C.F.R. § 41.50(b)
AFFIRMED

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peb

BAINWOOD HUANG & ASSOCIATES LLC
2 CONNECTOR ROAD
WESTBOROUGH, MA 01581